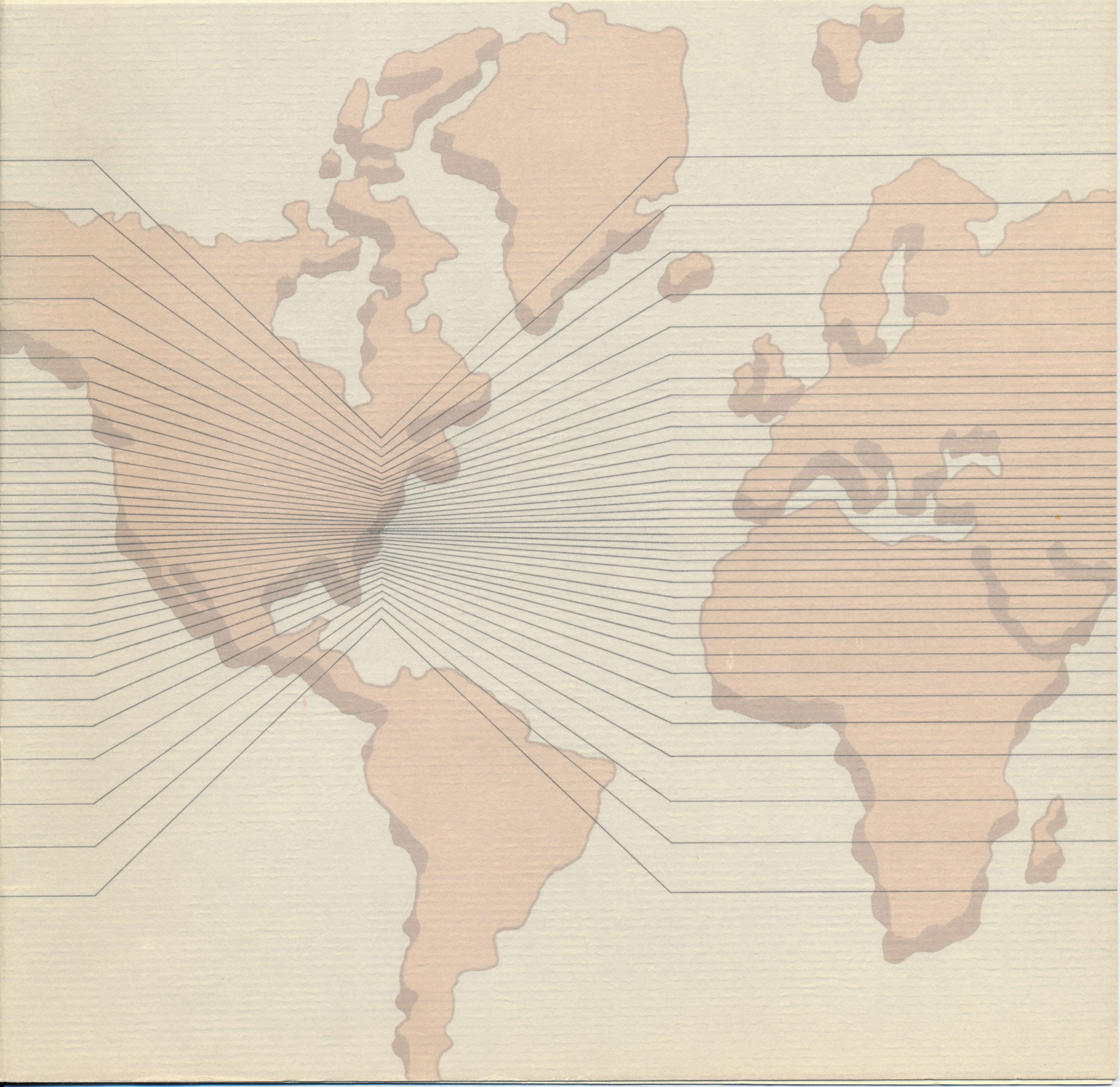
I. P. Sharp Associates

Using the I.P. Sharp System



USING THE I.P. SHARP SYSTEM

(A Handbook for Nonprogrammers)

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Using the SHARP APL System

This book belongs to _____

_____

I.P. Sharp Representative _____

Phone _____

I.P. Sharp Office _____

_____

_____

_____

SHARP APL Access Number _____ for _____Baud

_____ for _____Baud

Account number _____(Do *not* write your password here. Memorize it!)

Terminal Comments (Tab support? Noidles? Non-APL keyboard?)

_____ _____

_____ _____

_____ _____

Special Instructions _____

_____

_____

_____

I.P. Sharp Operator (voice) – Toronto (24 hours) (416) 363-2051
To report urgent communications trouble – Toronto (24 hours) (416) 363-1832
London U.K. (office hours) (01) 730-4567

INTRODUCTION

This manual is aimed at those people who want to use an application already set up for them on the SHARP APL computer system. It explains how to get started and how to deal with common problems. The detailed instructions for using a particular application are not in this manual, but can be found in separate documentation—usually a manual written specifically for that application. This manual describes general operating instructions relevant to most applications.

The appendix contains an alphabetical list of most messages you could get from the computer that are of a general nature—that is, not specific to an application. If you get a message that isn't listed here, then it likely pertains to the application you are using. Look in the application's manual for an explanation. Failing that, check the *SHARP APL Reference Manual* or the *SHARP APL Pocket Reference Guide.*

Some of the information in this manual will vary according to your circumstances—for instance, the type of terminal you use, and the SHARP APL access number you dial. You and your I.P. Sharp representative should write in the information appropriate for you, on the facing page.

In the examples, the shaded areas indicate what you, the user, type. The computer's messages and responses are unshaded.

SIGNING ON

Switch ON your terminal. If you are using a coupler, switch your coupler ON as well. (Make sure they are plugged in.) If you are using a data phone, press the TALK button.

Dial your local SHARP APL number. The computer will answer with a high-pitched tone. If you are using a coupler, place the phone receiver in the acoustic cups. For data phones, press the DATA button. Type:

```
O)
```

and press the RETURN key. Make sure you type the letter *O* (not the number zero) and the right parenthesis from the APL character set.

The terminal will print a blot (a block of garbled characters). Type your account number and password *on* the blot in the following manner:

```
)7654321:PASSWORD
```

where 7654321 and *PASSWORD* represent your account number and password, respectively. Typing them on the blot so no one can read them is a security precaution.

Remember always to press the RETURN key after every line you type! This sends what you have typed to the computer.

If your signon is successful, several messages will print, including the time and date, in UTC (for all practical purposes, the same as Greenwich mean time) and the message:

SHARP APL SERVICE

A sample signon might look like this:

```
O)
)1234567:CAT                          (normally this is typed on the above blot)
  1859)  8.30.59 07/31/81 XYZCOMPANY

SHARP APL SERVICE
```

Once you have signed on, the printhead of your terminal should be resting 6 spaces in from the left margin. Whenever the printhead is indented 6 spaces, you are in what is known as "immediate-execution mode", and the computer is waiting for you to type something. When you first sign on, this will usually be an instruction to load the application you wish to run.

If the printhead is waiting at the far left margin, or is at the end of a question, you are under the control of an application. What you type at that point can be found in the documentation for your application.

Note that this manual refers to a terminal's "printhead". If you are using a video screen terminal (not a hardcopy terminal), read "cursor" where you see "printhead".

Problems signing on

If your signon is not successful, you will usually get an error message.

NUMBER NOT IN SHARP APL SYSTEM means that you entered your number or your password incorrectly. Try typing them again.

INCORRECT SIGN-ON means that you have not used the correct format to enter your number and password. Try typing them again, making sure you have used the) and : from the APL character set, and that your terminal keyboard is not in the SHIFT LOCK position. If the message persists, it may be that the system has identified your terminal type incorrectly, because you did not type the beginning *0)* correctly. In this case, you will have to disconnect the phone and start again.

If you get no error message but the blot is printed again, you may have forgotten to type the) in front of your account number. Try typing your account number and password again. If you still get only a blot in response, it may be that the system has identified your terminal type incorrectly, because you did not type the beginning *0)* correctly. In this case, disconnect the phone and start again.

Messages such as *LINES DOWN* and *APL PROBABLY DOWN* refer to problems with the computer system or with your link to it. The telephone line will still be connected, so you can keep typing *0)* until you get a blot, which means the computer is back in operation. Alternatively, you can disconnect the phone, wait a few minutes and then start again from the beginning. Further information about these messages can be found in the appendix, "Messages from the computer".

If you get no response at all from your terminal, check that:

- the terminal (and coupler) are plugged in
- the terminal is switched to COMM, REMOTE, or ONLINE mode, is switched to the correct speed, and is on HALF DUPLEX
- you are using the correct "*O*" and ")"
- the coupler or modem is connected to the terminal
- the coupler is switched to FULL DUPLEX

Note that the computer holds the phone line for 60 seconds while you try to sign on; if you are very slow or keep making mistakes in typing your number and password, you may get disconnected and have to redial.

SIGNING OFF

To terminate your session with the computer, type:

```
)OFF
```

The computer then prints information about your computer usage and disconnects you. For example:

```
      )OFF
  3079  15.34.49  08/20/81   XYZ
CONNECTED     0.30.11  TO DATE     4.12.37
CPU UNITS      32.112  TO DATE     150.493
KILOCHARS       2.259  TO DATE      18.335
```

If someone else is waiting to sign on to the computer, you can sign off your account number, leaving the phone line connected, by typing *)OFF HOLD*. For example:

```
      )OFF HOLD
  3079  15.34.49  08/20/81   XYZ
CONNECTED     0.30.11  TO DATE     4.12.37
CPU UNITS      32.112  TO DATE     150.493
KILOCHARS       2.259  TO DATE      18.335
```

The blot is printed so the next user can immediately sign on, using his user number and password. After one minute, the line connection is broken if no one else has signed on.

If you wish to sign off, but want to be able in your next session to continue from the point at which you left off, you can type:

```
      )CONTINUE
```

or

```
      )CONTINUE HOLD
```

These both save the work you were doing in a workspace called *CONTINUE* and then sign you off. When you sign on again, the workspace *CONTINUE* is loaded automatically.

CORRECTING TYPING MISTAKES

If you make a typing error, you can correct it *before* pressing the RETURN key:

1. Backspace to the error. (Nothing is erased yet.)

2. Press the LINE FEED key or INDEX key (depending on your terminal). This advances the paper (or your cursor) one line and effectively erases the characters you backspaced over.

Now proceed as though you never typed the characters you backspaced over. That is, enter the correct information and press RETURN. For example:

```
)LOD 39 MAGI          Backspace to the "D" and press LINE FEED
   AD 39 MAGIC        Continue typing the line and press RETURN
```

If you forgot to press LINE FEED, you will probably get the message *ENTRY ERROR*—see the appendix "Messages from the computer".

If you would prefer to type the line all over again from the beginning, press BREAK. The computer will then ignore everything you typed on that line and let you start again.

Once you have signed on, you can start running your application immediately. However, you may be able to improve the efficiency of your terminal when printing, depending on the type of terminal you are using. Many terminals can "tab", and some terminals can have the operation of their printhead speeded up. If your terminal can handle one or both of these, you will save time and money. Be sure to ask your I.P. Sharp representative before trying them, however. Improper use of these facilities can result in garbled output.

Setting tabs

When tabs are set, your terminal "jumps" over consecutive blanks, improving the speed and efficiency of your terminal. If your application has been specially written for you, tabs may be automatically set for you by the application. Failing this, there may be a program you can use at the beginning of each session that will set tabs on your terminal. Ask your I.P. Sharp representative if such a program is available.

If not, here is how you set tabs on your terminal if it has a tabbing capability:

1. Tell the terminal what tab positions you'd like to use. Tabs every six print positions is a favourite. *How* you tell the terminal this differs from terminal to terminal. The instruction manual for your terminal will tell you. Once set, your terminal may store this information in its memory for future sessions. If your terminal doesn't have a memory, you have to set tabs on your terminal at the beginning of each session.

2. Tell the computer what tab positions you have set on your terminal. If they have been set every six print positions, type:

```
□HT←6
```

   This has to be done at the beginning of each session in immediate-execution mode.

Setting tabs makes your terminal print faster when reports contain consecutive blanks. It also reduces the number of characters sent to your terminal—since one tab character may replace, say, six blanks—thus reducing your character charge.

If, while printing, your terminal appears to be misaligning columns of data, something may have gone wrong with your tab settings (for example, you may have pressed the CLEAR button by mistake). Try setting tabs again, or type:

```
□HT←0
```

in immediate-execution mode to stop using tabs altogether.

Setting the terminal type

"Idle" characters (or nonprinting characters) are automatically sent to your terminal at the end of each line of output so that the printhead has time to return to the start of the next line before printing resumes. However, your terminal may not need these idle characters—typically if your terminal is a CRT or has a "buffer". To eliminate them, type:

```
)TERM NOIDLES
```

note: *NOIDLES* is one word

Your terminal will print slightly faster, and you will also reduce your character charge. If you set *NOIDLES* and your terminal is not equipped to operate with this setting, some characters may be lost. To revert to the "standard" mode of operation, type:

```
)TERM IDLES
```

Note that these commands must be typed when you are in immediate-execution mode, and that they apply until you are disconnected from the computer.

Using an APL terminal

The most convenient type of terminal to use on the SHARP APL system is one with an APL character set. The keyboard on a terminal with an APL character set looks like this:

The letters and numbers are situated where you would expect them to be. You will notice, however, that the shift characters are, for the most part, special characters, unique to APL. Unless you plan to program in APL, you can simply ignore these special APL characters.

Using a non-APL terminal

Although the most convenient terminal to use on the SHARP APL system is one with an APL character set, several other types of terminals can be used, including non-APL ASCII terminals, communicating word processors, and Telex machines.

For information on using a Telex machine, see the *Telex Access to APL Users' Manual* published by I.P. Sharp.

The computer recognizes the type of terminal you are using (APL or non-APL) from the first ")" you type when signing on. If you type the ")" by using the key you would normally use on an APL keyboard, then your terminal is recognized as an APL terminal, and throughout the session you must use the APL keyboard layout. The following instructions apply if you have signed on using the ")" key from the non-APL keyboard layout.

If your terminal has all 128 ASCII characters, you must remember to type all the letters in commands and program names in upper case. For example:

```
)LOAD 666 BOX
```

rather than

```
)load 666 box
```

If your terminal has an "upper case only" key, sometimes marked UC ONLY or CAPS, using it will save you having to use the shift key for letters. The lower case alphabetic characters are interpreted by the computer system as APL underbarred characters (for example, **x** as $\underline{X}$). Likewise, APL underbarred characters are printed on the terminal as lower case characters. Therefore, if a user working on a non-APL terminal types a message such as:

```
This is a sentence
```

it would print on an APL terminal as

THIS IS A SENTENCE

There is no ¯ (high minus) sign on a non-APL terminal; however, " (double quote) is interpreted by the computer as high minus. Thus, you should type:

```
"2
```

if you want to input the negative number 2.

Some non-APL terminals have no backspace key. Since backspace is very useful for correcting typing errors, the character \ (back slash) is interpreted as a backspace by the computer. For example:

```
)LOD\                    (LINE FEED after \)
    AD 39 MAGIC
```

is interpreted as

```
)LOAD 39 MAGIC
```

Remember that while using this type of terminal, you can't use \ as a normal part of your input since the computer interprets it as a backspace.

A few other keys are also translated. Here is a full list:

APL Character	ASCII Equivalent
¯ high minus	"
× multiplication	#
÷ division	%
← left arrow	_
→ right arrow	@
ρ rho	&
backspace	\

Loading the application

To make available the application you want to use, you must **load** a **workspace**. This is done by typing *)LOAD* followed by the workspace identification. For example:

```
)LOAD REPORTS
```

or

```
)LOAD 39 MAGIC
```

or

```
)LOAD 1234567 ACCOUNTS
```

If the load is successful, the computer will print *SAVED* followed by the time and date the workspace was last saved. If you get *WS NOT FOUND* (*WS* is an abbreviation for "workspace") or *INCORRECT COMMAND*, check to see that you typed the command correctly and try again.

For reasons of security, some workspaces are "locked"—this means that in order to load them, you must know the password. To load a locked workspace, type a : (colon) and the password at the end of your load command. If *XYZ* were a password, you would type:

```
)LOAD 1234567 ACCOUNTS:XYZ
```

If you try to load a locked workspace without the correct password, you will receive the message *WS LOCKED*.

The numeric part of the workspace identification may be either a public library number (generally a number in the range 1 to 500) or an account number. If this account number is your account number, the number may be omitted from the *)LOAD* command. For example, *)LOAD* 7654321 *ACCOUNTS* is equivalent to *)LOAD ACCOUNTS* if your account number is 7654321.

Running the application

Once the workspace has been loaded into the computer, the application (a set of functions) contained in the workspace may be executed (or "run").

If the application has been set to start automatically, you merely have to follow the instructions given by the program. If the application does not start automatically, you will have to type the name of the function you wish to execute. Details of the procedure to be followed in this instance will be found in the application's documentation.

INTERRUPTING THE COMPUTER

You may want to interrupt what you have set the computer to do, because you realize you instructed it wrongly, or because your terminal is printing a report and the paper needs adjusting.

If you simply want to halt printing temporarily while you adjust the paper, you press the CONTROL (or CTRL) key and "*S*" at the same time. Printing should stop almost immediately. When you are ready to continue, press the CONTROL key and "*Q*" at the same time.

If you want to cancel altogether what the computer is doing, press the BREAK or ATTN key. The reaction you get depends on how your application has been programmed. Some applications are programmed so that if you press BREAK, you are asked what you want to do next. Other applications leave you in immediate-execution mode (the printhead indented 6 spaces). If this happens, you may sign off, or load another workspace, or do another task in the same workspace. In the latter case, you should type:

```
)RESET
```

before continuing. Note that occasionally problems can arise if you interrupt an application while it is updating data stored in files. If in doubt, save your work (see section "Saving a workspace after an error") and seek help.

SAVING A WORKSPACE AFTER AN ERROR

If your application goes wrong and you need help in finding the problem—from the application's steward or from an APL programmer—you should save the workspace exactly as it is when the error occurred. Keep the printout and save the evidence of the error in the computer by doing the following:

```
)WSID HELP        rename your active workspace to HELP
)SAVE             save the workspace
)OFF              sign off
```

If you get *WS QUOTA USED UP* after typing *)SAVE*, the simplest thing to do is to type *)CONTINUE* (this will save your workspace *and* sign you off). However, you shouldn't then use your account number until someone has looked at your saved workspace. See the discussion on the error message *WS QUOTA USED UP* in the appendix if you prefer a more flexible solution.

Once the problem has been solved, you can drop the workspace called *HELP* by typing:

```
)DROP HELP
```

CONTROLLING YOUR WORKSPACES

Since you pay for each workspace you save, you will want to make sure you have no unnecessary saved workspaces.

Listing the names of your workspaces—*)LIB*

To find out what workspaces you have saved, type:

```
)LIB
```

This prints a list of workspace names. For example:

```
)LIB
CONTINUE   HELP      MYSYSTEM
```

You may find that you have a workspace called *CONTINUE* which you do not remember saving; the APL system automatically saves your work in *CONTINUE* if you are disconnected from the computer abnormally. The section "Getting disconnected from the computer unexpectedly" contains further information on *CONTINUE*.

Dropping a workspace—*)DROP*

To drop a saved workspace called, say, *HELP*, type:

```
)DROP HELP
10.01.38 08/20/81
```

this is the time and date when the workspace was dropped

You do not have to first load a workspace in order to drop it.

If you drop a workspace and then find you need it again, it should be possible to reinstate it, as long as the workspace existed overnight. There is a small charge for this. Ask your I.P. Sharp representative for further details.

GETTING DISCONNECTED FROM THE COMPUTER UNEXPECTEDLY

You can get disconnected from the computer unexpectedly for several reasons:

1. Local problems such as your equipment getting unplugged or a break in your local telephone connection. The result is no response from the computer.

2. A break in transmission on the I.P. Sharp network. You will get the message *LINES DOWN*.

3. A breakdown in the central computer. You will get a message such as *APL PROBABLY DOWN*.

Whatever the cause of the disconnection, the work you were doing when the break occurred will be stored in the computer in a workspace called *CONTINUE*. When you sign on again, you should be able to resume from the point at which you were interrupted, although the last line you typed may not have been taken by the computer. If you were in the middle of answering a set of questions, most applications will have been programmed to continue and ask you the next question to which it needs an answer. If you were printing a report, it is quite likely that you lost part of the page, and you may have to reprint the whole report. If you do not get guided by the application as to what to do when you have signed on again, the application's documentation may give instructions (often under the heading "Restarting"). Failing this, you should check with the programmer of the application.

Note that the workspace *CONTINUE* is loaded automatically after an interruption—you do not have to type)*LOAD CONTINUE*. You will know that your last session was interrupted and *CONTINUE* has been automatically loaded because you will get an extra line following the *SHARP APL SERVICE* message:

```
      SHARP APL SERVICE
SAVED 13.25.26 08/21/81
```

if local or network problems

or

```
      SHARP APL SERVICE
RECOVERED 13.25.26 08/21/81
```

if computer problems

You do not pay for the workspace called *CONTINUE*, but note that it is *very* bad practice to save a workspace called *CONTINUE* yourself, as it will be overwritten next time you get disconnected from the computer unexpectedly.

SENDING A MESSAGE TO THE COMPUTER OPERATOR

There are times when you may wish to communicate directly with the computer operator—for instance, if your file reservation or workspace quota is used up. You can send the operator one or more one-line messages by using the *)OPR* command. This command can only be used when you are in immediate-execution mode.

```
)OPR PLEASE INCREASE MY FILE RESERVATION BY .5 MILLION BYTES. THANK YOU
```

After pressing RETURN, the printhead will remain at the left margin. When the operator receives the message, the terminal will print *SENT*, and the printhead will return to the left margin, awaiting the operator's reply. The operator will reply with a message such as:

```
OPR: YOUR FILE RESERVATION HAS BEEN INCREASED
```

From the time you send your message to the time you get a reply, you cannot use your terminal for any more work.

However, if you wish to cancel your message to the operator *before* you receive the *SENT* message, you can do this by pressing BREAK. The computer will respond with:

```
MESSAGE LOST
```

You can then send another message or carry on with some other work.

If you press BREAK *after* the *SENT* message, but before the operator's reply, you may delay receiving the operator's reply. Pressing BREAK at this time will return your printhead to its indented position. In order to receive a reply, the printhead must be at the left margin. When the operator replies, you will receive the message the next time you press RETURN.

You can send another message to the operator—using the *)OPR* command again—either after the *SENT* message (press BREAK then send your message) or after the operator's reply.

CHANGING YOUR PASSWORD

Your password (sometimes referred to as your "lock") is the part of the signon process that prevents other people from using your account number. While you may tell other people your account number—for example, if you want them to load one of your workspaces—you should keep your password secret to prevent unauthorized use of your account number. It is good security to change your password from time to time, and you should always change it if you suspect that someone else knows it.

A password can be up to seven characters long, both letters and numbers. You can change it when you sign off, by typing a : (colon) and the new password after the signoff command. For example:

```
)OFF:NEWWORD
```

or

```
)OFF HOLD:NEWWORD
```

For additional security, you may not want this statement to appear on your printout. Type *)BLOT* and a blot will be printed on the paper. *On* the blot, type your signoff and new password.

The next time you sign on, don't forget to use your new password.

If you forget your password, or for any reason your password doesn't seem to work (you will get *NUMBER NOT IN SHARP APL SYSTEM* when you try to sign on), you will have to get help from your I.P. Sharp representative, who can impose a new password on your account number. Because of the security implications of this, such requests should be channelled through a recognized coordinator in your company. Once a new password has been imposed on your account number, be sure to change it so that only you know what it is.

NORMAL WORKING HOURS OF THE COMPUTER

The computer normally runs all week without a break except for a few hours on Sunday. Public data bases are available throughout this time except for a period on Saturdays. Your local I.P. Sharp representative can tell you the scheduled hours of working in your time zone.

Weekend service is subject to change at short notice. When a change is anticipated, a warning message is printed at signon time as the weekend approaches. The schedule can be displayed by loading the workspace `1 NEWS` and typing `SCHEDULE`.

LIMITING YOUR USAGE OF CENTRAL PROCESSING UNITS

Unless you have arranged otherwise, your account number can use an unlimited amount of computer processing time, measured in CPU units (CPU stands for "central processing unit"). This can be of concern if you write your own programs as it is possible to make a programming error that causes your program to go into an "infinite loop"—that is, to execute the same instructions repeatedly, until you press the BREAK key or disconnect the terminal from the computer. To prevent you from making an expensive mistake like this, you can set a limit on your CPU usage during the running of a program. The limit applies to the units used between two entries from the keyboard. If the number of units used during this time reaches the limit that has been set, your work will stop—the line of the program being executed will be printed and the terminal will be left in immediate-execution mode. You can then decide whether to continue processing from that point or not. If you continue, the computer starts a fresh timing of the units used, so you can use units up to your limit before being interrupted again.

A limit can be set in one of two ways:

1. Your account number can be given a CPU limit which always applies. Your I.P. Sharp representative can arrange for this to be done.

2. You can set a limit yourself to apply to the current session only, by using the command *)CPULIM*. For example:

`)CPULIM 10`	sets the limit per execution to 10 units
`)CPULIM 10 50`	sets the limit for any execution to 10 units and the total CPU for the session to 50 units
`)CPULIM 0 0`	removes any limit you set previously in the session

If you reach the total CPU limit for the session, you have to reset *)CPULIM* if you wish to continue the session.

FINDING OUT HOW MUCH YOU HAVE SPENT

When you sign off, you can see how much connect time and how many T-task units and characters you used during that session and month-to-date. During the session, you can type `⎕AI` to find out your usage of these items so far this session (see the *SHARP APL Reference Manual* for details).

`⎕AI` and the signoff message only tell you the T-task CPU units, connect time, and characters you have used. You may also have used N-task and B-task units (some applications do part of the work in an N-task or B-task to save costs), and have files and workspaces saved. To find out more complete information for the month so far, you can use the workspace `1 USAGE`. See *SHARP APL Technical Note 9* for further information.

If you control several account numbers, you may wish to monitor usage on those account numbers during the month, without signing on to each number in turn. Workspace `1 USAGE` can be used for this purpose—ask your I.P. Sharp representative for further details.

The above inquiry methods all give you the information in units. Ask your I.P. Sharp representative if you would like to see the information in your local currency.

FINDING OUT MORE ABOUT THE I.P. SHARP SYSTEM

I.P. Sharp publishes many tutorial and reference manuals covering I.P. Sharp's application software products, public data bases, and the SHARP APL system. The "Publications Order Form" shows a complete list of these publications.

For more information on I.P. Sharp's applications software, ask for the *Applications Software* brochure and the *Public Workspaces Catalogue*. For more information on I.P. Sharp's public data bases, ask for the *Public Data Bases Overview* and the *Public Data Bases Catalogue*. These publications are free of charge.

News

Current news about I.P. Sharp, SHARP APL, applications software, and public data bases is published every other month in the *I.P. Sharp Newsletter*. "Up to the minute" news is broadcast on the I.P. Sharp computer system through the workspace 1 *NEWS*. The news items in 1 *NEWS* can be displayed as follows:

```
      )LOAD 1 NEWS
SAVED 18.33.03 01/12/81
      NEWS

2 NEWS ITEMS ADDED SINCE YOUR LAST SIGNON, 1982/06/17
CURRENT NEWS, ITEM NO.: 170 169 168 167 166 165 164 163 162 161 160 159
OPTION: DISPLAY 169 170
.
.
[news items would print here]
.
.
OPTION: QUIT
```

Check this workspace frequently to see what's new.

Reference Workspaces

Three workspaces give online information on applications software, data bases, and the SHARP APL network. After loading the appropriate workspace, type *DESCRIBE*.

1. The workspace 1 *PUBLICLIBS* will help you locate a public workspace if you don't have an up-to-date *Public Workspaces Catalogue*.

2. The workspace 1 *DATABASES* will let you find out what public data bases are available if you don't have an up-to-date *Public Data Bases Catalogue*. It also contains an applications library of pre-programmed reports for use with the public data bases.

3. The workspace 1 *NETWORK* contains the SHARP APL network phone numbers throughout the world. This is handy if you plan to use the I.P. Sharp computer while travelling. It also contains signon procedures for the major networks which link into the SHARP APL network.

Appendix

MESSAGES FROM THE COMPUTER

This section lists alphabetically messages from the computer which you are not expecting. They are a result of some problem—a problem with the central computer, a problem with something you typed, or a problem with the application you are using. Most applications handle most problems—for example, if numeric input is required in response to a prompt, and you type in letters by mistake, the application will probably point out the error and ask you to try again. However, there are some problems that an application cannot deal with, and some which the programmer may have overlooked. In this section, you should be able to find out what action to take. If you can't find a message here, the *SHARP APL Reference Manual* and the *SHARP APL Pocket Reference Guide* both have a comprehensive list of messages.

APL DEFINITELY HUNG
APL NOT AVAILABLE
APL PROBABLY DOWN
APL PROBABLY HUNG
AWAITING FUNCTION FOUR

These are all messages indicating that the computer is not available or simply not working. Unless you are trying to access the computer outside its scheduled working hours (see section "Normal working hours of the computer"), there has been a computer failure which the operations staff will be correcting. Wait a few minutes and then try to sign on again. The telephone line will not have been disconnected, so you need only redial if you had disconnected the line. If you were signed on when you received one of these messages, you will have to sign on again—see section "Getting disconnected from the computer unexpectedly" for further information on continuing your work after the interruption.

DOMAIN ERROR

If you get *DOMAIN ERROR* while in immediate-execution mode, you likely mistyped something. Check what you typed, correct it, and try again. If you get *DOMAIN ERROR* while using an application, there is an error in the application and you should seek help from the application's programmer or steward. See the section "Saving a workspace after an error" for instructions on how to proceed.

EDIT OPEN QUOTE

This occurs if you are in immediate-execution mode, and the line you typed has an uneven number of quote marks ('). The simplest way of dealing with this (once you have decided where you want to add or delete a quote mark) is to press RETURN, so that the line in error is displayed and the printhead stays at the *right* end of the line as if you had just typed the line. You can add a quote at the end, or backspace to the position where you want to insert a quote, LINE FEED to erase the part

of the line you backspaced over and continue typing from that point. For example:

```
      WHOIS 'HELP                    a quote mark is missing after the P
EDIT OPEN QUOTE
      WHOIS 'HELP
Press RETURN
      WHOIS 'HELP                    now add the quote mark at the end and RETURN
```

or:

```
      WHOIS KHELP'                   the K should have been a quote
EDIT OPEN QUOTE
      WHOIS KHELP'
Press RETURN
      WHOIS KHELP'                   now backspace to the K, press LINEFEED and retype the rest of
                                     the line.
           'HELP'
```

Remember that if you are in immediate-execution mode, you must enter two quote marks together to get a single quote in a character string. For example:

```
      TITLE 'LAST YEAR''S FIGURES'
```

would be needed if you wanted the title to be *LAST YEAR'S FIGURES*.

Another method of dealing with *EDIT OPEN QUOTE* is to edit the line. This is more complex to learn. See the chapter "Modes of Interaction at a Terminal" in the *SHARP APL Reference Manual* for details.

ENTRY ERROR

If, after you have typed a line and pressed RETURN, the computer replies *ENTRY ERROR* and possibly reprints some of the line you just typed, the computer did not understand one of the characters transmitted. This may be because you entered an illegal character (you may have backspaced to correct a typing error and forgotten to LINE FEED) or because there was "noise" on the telephone line. The computer prints out as much of the line as it understood—you should simply type the rest of the line to complete it.

FILE TIE ERROR

This may occur after signing on again after being disconnected unexpectedly, if you did not follow the correct procedure for restarting as explained in the documentation for your application. If you cannot see anything wrong, save your work (see section "Saving a workspace after an error") and seek help.

FILE RESERVATION ERROR

Each account number in the I.P. Sharp system has associated with it a limit on the amount of file space it can use. This is to prevent users from accidentally using large amounts of file space. However,

you may need more file space than has been allocated to you. If you are running an application which stores data in a file on *your* account number and you get *FILE RESERVATION ERROR*, you will have to increase your allocation.

After the message *FILE RESERVATION ERROR*, you will be left in immediate-execution mode. At this point, send a message to the computer operator requesting an increase in your file reservation:

```
FILE RESERVATION ERROR
∆REPLACE[2]
      )OPR PLEASE INCREASE MY FILE RESERVATION  BY .5 MILLION BYTES
```

For more information on sending a message to the operator, read the section "Sending a message to the computer operator".

Unless you have been given instructions on how to continue after a *FILE RESERVATION ERROR*, you should save your work (see section "Saving a workspace after an error") and seek help. If, immediately after continuing, you get *another* file reservation error, save your work and seek help.

Note that you may be using an application that stores data on someone else's account, not your account. You cannot increase someone else's file reservation. In this case, save your work and seek help.

IMPROPER LIBRARY REFERENCE

This is caused by one of two problems:

1. You have tried to list the names of the workspaces on someone else's account by typing *)LIB* followed by an account number. You can only use *)LIB* to list your own workspace names or ones in the public libraries (these have an account number between 1 and 999).

2. You have tried to save a workspace using *)SAVE* when the name of the workspace contains another account number. For example:

```
      )LOAD 39 MAGIC
SAVED 23.54.23 09/04/81
.
.
.
[write some functions]
.
.
.
      )SAVE
IMPROPER LIBRARY REFERENCE
```

You cannot save a workspace with the name 39 *MAGIC*. Change its name and save it.

Either

```
      )WSID REPORTS          changes the name to REPORTS
WAS 39 MAGIC
      )SAVE                  saves REPORTS
```

Or

```
      )SAVE REPORTS          this works if you don't already have a workspace called
                             REPORTS
```

INDEX ERROR
LENGTH ERROR

If you get one of these errors in response to something you typed while in immediate-execution mode, you may be able to check and correct your input. If either of these errors is printed while you are using an application, there is an error in the application and you will need to get help. See the section "Saving a workspace after an error" for instructions on how to proceed.

LINES DOWN

There has been a break in the connection between you and the central computer. This is usually because of a failure in the telephone circuits linking the network. The failure may be only momentary, so you may be able to sign on again almost immediately. Note that *LINES DOWN* does not disconnect your local telephone link, so you can try your signon procedure starting with *)O*). See the section "Getting disconnected from the computer unexpectedly" for further information on continuing work interrupted by *LINES DOWN*.

NOT SAVED, THIS WS IS ...

Either you have tried to save a workspace that has no name (a *CLEAR WS*) or you are trying to save a workspace using a name that you have already used. For example:

```
      )LIB
ACCOUNTS   REPORTS                you have 2 workspaces
      )LOAD ACCOUNTS
      .
      .
      .
      [do some work]
      .
      .
      .
      )SAVE REPORTS               REPORTS already exists
NOT SAVED, THIS WS IS ACCOUNTS
```

The computer is warning you that you are trying to overwrite an existing workspace (*REPORTS*) when you may not intend to!

Decide what workspace name you want to use—maybe *REPORTS*, maybe a new name—then do the following:

```
      )WSID SUMMARY               you decided on a new name
WAS ACCOUNTS
      )SAVE
```

This will save a workspace called *SUMMARY*.

PA!

Occasionally the computer operator sends a message to everyone signed on—this is called a "public address" or "PA". The message is printed on your terminal prefixed by *PA!*. For example:

```
PA! SYSTEM SHUTTING DOWN FOR 5 MINUTES AT 18.00. PLEASE SIGN OFF.
```

The work you are doing will be unaffected by the message being printed. Follow the instructions in the message carefully and promptly.

PATIENCE PLEASE

This occasionally occurs when you try to sign on again immediately after a previous session—especially if that session was terminated by you being disconnected from the computer unexpectedly. Wait a few minutes and try signing on again.

RANK ERROR

If you get *RANK ERROR* while you are using an application, there is an error in the application, and you should seek help from the application's programmer or steward. See the section "Saving a workspace after an error" for instructions on how to proceed.

RESEND

Your last entry was lost owing to transmission problems, or because it was too long (that is, longer than 2000 characters). If lost owing to transmission problems, retype the line.

RESULT ERROR
SYNTAX ERROR
VALUE ERROR

If you get one of these messages while in immediate-execution mode, you likely mistyped something. Check what you typed, correct it, and try again. If you get one of these messages while using an application, you should seek help from the application's steward or programmer. See the section "Saving a workspace after an error" for instructions on how to proceed.

WS FULL

This means "workspace full" and indicates that the programs and data you are using have completely filled the storage in the workspace, so there is no room for further work.

WS FULL can sometimes occur if your work was previously interrupted and you did not continue from where you left off but rather from the beginning. In this case, try typing:

```
)RESET
```

and start from the beginning. Beware that if your program updates data files, problems can be created if you get interrupted and start again from the beginning. If in doubt, save your work (see the section "Saving a workspace after an error") and seek help.

WS QUOTA USED UP

Each account number in the I.P. Sharp system has associated with it a quota of workspaces that can be saved. When an account number is created, it is usually given a quota of 5—that is, you can save five workspaces (excluding *CONTINUE*). If you try and save a workspace above your quota, you will get *WS QUOTA USED UP*. See the section "Controlling your workspaces" to see how to check what workspaces you have and how to drop any you no longer need. (Beware not to load them to see if you need them, or else the workspace you are trying to save will be lost). If you don't want to dispose of any of your saved workspaces, you can increase your workspace quota by sending a message to the computer operator. For example:

```
)OPR PLEASE INCREASE MY WS QUOTA TO 10
```

When the operator replies that it has been done, you can type your *)SAVE* command again. See the section "Sending a message to the computer operator" if you need more details on how to message the operator with your request.

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Note on alphabetization: The right parenthesis) is alphabetized as though it didn't exist; thus, for example, *)DROP* is under D. The special symbol ⎕ is alphabetized as though it were spelled *quad*.

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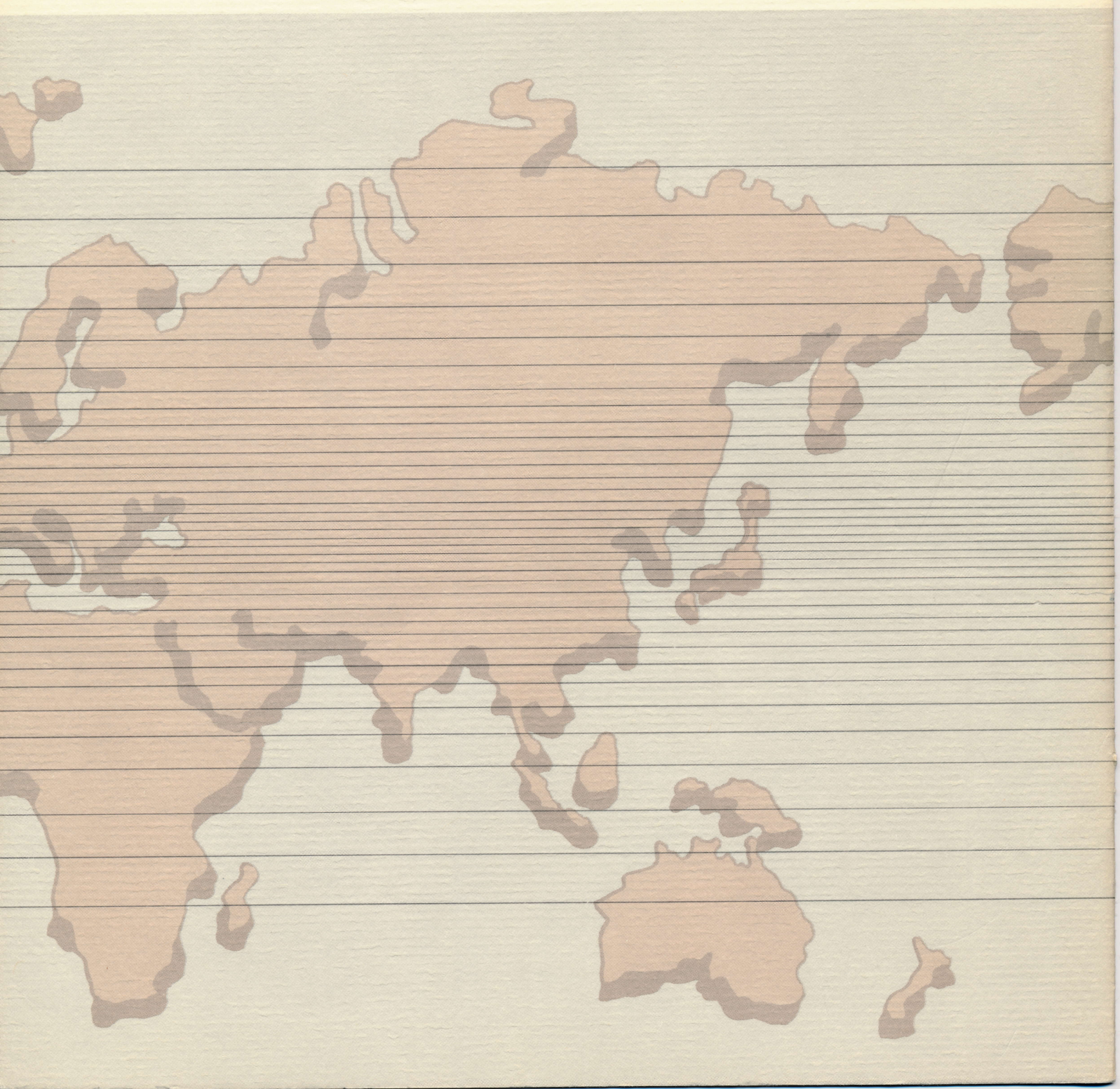
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